

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A fabrication process for an optical microsystem with a monolithic electronic matrix[[,]] ; comprising the steps of: ~~wherein~~

fabricating collectively N dot matrix arrays [[(RM)]] and circuits associated with each array ~~are fabricated collectively~~, on the front of a semiconductor wafer of a thickness of at least around one hundred or several hundred microns[[,]] ;

~~in order to produce~~ producing on this wafer N identical monolithic electronic chips [[(10)]], with, on at least one side of each array [[(RM)]], a set of electrical contact lands [[(CC)]] for connecting the corresponding chip externally[[,]] ;

fabricating collectively a plate for ~~collectively~~ forming N identical optical image-forming structures [[is]] ~~fabricated collectively and~~ placed in close contact with the front of the semiconductor wafer, each optical image-forming structure [[(12)]] covering a respective chip [[(10)]] and being designed to form an overall image corresponding with the whole of the matrix array of the respective chip,

opening holes [[(32)]] at the back and through to the contact lands [[(CC)]] on the front ~~are opened at the back~~ of the semiconductor wafer and through its thickness, these holes are used to establish a conductive electrical connection with the contact lands from the back of the wafer, and, ~~only after these various operations,~~ dividing the wafer [[is]] ~~divided~~ into N individual optical microsystems, the separation between the chips and the separation between the optical structures covering the chips being carried out along the same cutting lines [[(HH, VV)]].

2. (currently amended): The process as claimed in claim 1, ~~characterized in that it comprises~~ comprising:

~~the formation of~~ forming a sealing bead [[(26)]] around each chip for bonding the chip with the optical image-forming structure, [[this]]

depositing the bead ~~being deposited~~ in rows and columns at the collective fabrication stage, on the semiconductor wafer or on the plate intended to form the optical structures,

~~and in that,~~ wherein at the end of the collective fabrication steps on the wafer, the wafer and the plate are cut along rows and columns extending in the direction of the sealing beads, centered widthwise along the latter.

3. (currently amended): The process as claimed in ~~one of claim~~[[s]] 1 ~~or 2~~, intended for the fabrication of a liquid crystal microdisplay, a liquid crystal being contained in a cavity formed between the chip and the plate intended to form the optical structures, characterized in that further comprising:

a filling hole [[(34)]] is made, for each chip, through the thickness of the semiconductor wafer, and in that the filling is carried out and a plug is formed in the hole after filling, before carrying out separation of the wafer and of the plate into individual microsystems.

4. (currently amended): An optical microsystem, ~~characterized in that it comprises~~ comprising:

the close association of a monolithic electronic chip of a thickness of one or more hundred microns, bearing on its front a dot matrix array [[(RM)]] and electrical contact lands [[(CC)]], and [[of]] an optical structure for forming an overall image corresponding to the array, the optical structure being placed against the front of the chip, with electrical contacts [[(30)]] on the back of the chip and conductive vias [[(32)]] between these electrical contacts on the back and the contact lands on the front, for access to the matrix array.

5. (currently amended): The microsystem as claimed in claim 4, wherein said optical microsystem forming forms a liquid crystal microdisplay and ~~using as~~ uses an associated optical structure a cavity filled with liquid crystal and sealed by a plate [[(12)]] comprising a back electrode, the liquid crystal being situated between the chip and this plate, the chip further comprising a hole [[(34)]] for filling the cavity from the back of the chip, extending from the back to the front of the chip, this hole being sealed by a plug [[(36)]].

6. (new): The process as claimed in claim 2, intended for the fabrication of a liquid crystal microdisplay, a liquid crystal being contained in a cavity formed between the chip and the plate intended to form the optical structures, further comprising:

a filling hole is made, for each chip, through the thickness of the semiconductor wafer, and in that the filling is carried out and a plug is formed in the hole after filling, before carrying out separation of the wafer and of the plate into individual microsystems.